

## Abstract

A rechargeable, alkaline, zinc-based battery containing a stack of hydrogen permeable cellulose-based films, each one optionally containing a dispersion of metal salts. A film may contain copper salt that reacts with cellulose to prevent zinc dispersion. A second film may contain fluoride salts that react with silver ions to prevent silver plating. A third optional film contains sulfide salts that react with copper ions to form copper sulfide salts to lower copper ion concentration in the electrolyte. The stack may also contain at least one hydrogen-permeable regenerated cellulose film and at least one hydrogen permeable hydrocarbon film such as polypropylene.

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